

CLAIMS

What is claimed is:

5 1. A monitoring device for monitoring a target, comprising:
a microcontroller programmed for operating said monitoring device;
a pager operable for communicating with a pager network;
a pager modem for interfacing with said pager for communicating over said pager
network;
a global positioning sensor; and
10 an interface between said monitoring device and said target for communicating
signals relating to said target.

15 2. The monitoring device of Claim 1, further comprising:
a computer port for connecting said monitoring device to a computer to allow
communication between said computer and said pager network.

20 3. The monitoring device of Claim 2, further comprising:
said pager modem and said microcontroller being operable for sending email
messages over said pager network.

4. The monitoring device of Claim 1, wherein:
said pager is operable for sending and receiving signals over said pager network.

5. The monitoring device of Claim 1, wherein said interface further comprising:

one or more inputs to said monitoring device from said target, and
one or more outputs from said monitoring device to said target.

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6. The monitoring device of Claim 1, wherein said target is a vehicle and said interface communicates electrical signals relating to one or more elements of said vehicle.

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7. The monitoring device of Claim 1, wherein:
said microcontroller is programmed in a low level language closely related to an architecture of said microcontroller.

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8. The monitoring device of Claim 1, wherein:
said microcontroller is programmed to receive a message from said modem and
execute one or more commands in response to said message.

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9. The monitoring device of Claim 1, wherein:
said microcontroller has no port that allows access for reading programming of
said microcontroller.

10. A monitoring system for monitoring a target, comprising:
a microcontroller programmable in a low level language closely related to an
architecture of said microcontroller;
a pager for transmitting and receiving pager signals;
5 a pager modem for interfacing with said pager;
a target interface between said monitoring device and said target for
communicating one or more target signals relating to said target; and
said microcontroller, said pager, said pager modem, and said target interface
being affixed to said target.

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11. The monitoring system of Claim 10, further comprising:
a pager network operable for communication with a plurality of pagers, and
one or more computers having an Internet connection, said one or more computers
being operable for communicating over said Internet and through said pager network to
15 detect said one or more target signals.

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12. The monitoring system of Claim 11, wherein:
said one or more computers being operable for sending a target control signal
through said Internet connection for controlling a feature of said target.

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13. The monitoring system of Claim 10, further comprising:
a pager network operable for communication with a plurality of pagers,

a computer connection operable with said pager network, and
a database operable for storing definitions of each of said one or more target
signals for a plurality of targets.

5 14. The monitoring system of Claim 10, further comprising:
a global positioning sensor affixed to said target.

15 15. The monitoring system of Claim 14, wherein:
said microcontroller is programmed to collect location data from said global
10 positioning sensor, and send said location data through said pager modem.

15 16. The monitoring system of Claim 14, wherein:
a pager network operable for communication with a plurality of pagers,
one or more client computers, said one or more client computers being operable
for communicating through said pager network and said pager modem to determine a
location of said target.

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20 17. The monitoring system of Claim 10, further comprising:
a pager network operable for communication with a plurality of pagers,
a server in communication with said pager network, and
one or more computers being operable for communicating over said server
through said pager network to detect said one or more target signals.

18. The monitoring system of Claim 10, further comprising:
a database for storing initialization information defining said one or more target
signals for each of a plurality of targets.

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19. The monitoring system of Claim 10, further comprising:
a pager network operable for communication with a plurality of pagers, and
a two-way pager operable for communicating through said pager network and
with said pager modem to send a message to be operated on by said microcontroller.

20. A method for monitoring a target, comprising:
attaching a pager with an antenna to said target;
attaching an electrical interface to said target;
providing that one or more electrical signals may be received from said target
5 through said electrical interface;
providing for encoding of a message to a pager modem to form a modem encoded
message relating to said one or more electrical signals from said target;
controlling said electrical interface and said pager modem with a microcontroller;
and
10 providing for transmission of said modem encoded message through said pager
using said antenna.

21. The method of Claim 20, further comprising:
repeatedly checking said electrical interface for said one or more electrical signals
15 from said target.

22. The method of Claim 20, further comprising:
transmitting a message from a pager network to said pager,
receiving said message through said pager modem, and
20 executing a command responsive to said message.

23. The method of Claim 20, further comprising:

determining a global position,
encoding a message to a pager/modem to form a global position message based on
said global position, and
transmitting said global position message through said pager using said antenna.

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24. The method of Claim 23, further comprising:
receiving said global position message through a pager network, and
saving said global position message in a database.

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25. The method of Claim 24, further comprising:
providing for remote access to said database.

26. The method of Claim 25, further comprising:
providing access to said database over an Internet connection.

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27. The method of Claim 20, wherein:
said target is a vehicle, and said one or more electrical signals relate to said
vehicle.

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28. The method of Claim 20, wherein:
said target is a structure affixed to the Earth so as to be non-moveable.

affixing a module with said pager, said antenna, and said microcontroller to said target where said target is a vehicle.

remotely operating said module for enforcing a loan related to said vehicle.

10 remotely operating said module for determining that said vehicle stays within a
selectable region.

32. A monitoring system for monitoring a plurality of targets on behalf of a plurality of clients, each of said clients being associated with one or more of said plurality of targets, comprising:

5 a computer network server operable for communicating with a plurality of client computers;

a database operable for storing information relating to each of said plurality of targets;

10 a pager network system operable for communicating wirelessly with a plurality of pagers, said computer network server being in communication with said pager network system; and

15 a plurality of wireless communication units for each of said plurality of targets, each of said plurality of wireless communication units being operable for communication with said wireless network, each of said plurality of wireless communication units including a global position sensor to provide location information for each of said plurality of targets, each of said plurality of client computers being operable for sending a message to request said location information relating to said one or more of said plurality of targets with which said client is associated.

33. The monitoring system of Claim 32, wherein:

20 said computer network server is operable for communicating with said plurality of client computers over an Internet connection.

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~~34.~~ The monitoring system of Claim ¹⁶~~33~~, further comprising:

said plurality of client computers being operable for producing a map showing thereon a geographic picture of one or more of said plurality of targets.

5 35. The monitoring system of Claim 33, wherein:

each of said plurality of client computers being operable for selectively communicating with all or with specific of said one or more of said plurality of targets with which said client is associated.

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SUB-PP 36. The monitoring system of Claim 32, further comprising:

said database being operable for storing information for each of said plurality of targets that includes definitions of inputs and outputs for a respective interface between each of said plurality of targets each corresponding wireless communication unit.

¹⁵ 37. The monitoring system of Claim 32, :

said database being operable for containing a list of ingoing and outgoing messages.

38. The monitoring system of Claim 32, further comprising:

20 said plurality of wireless communication units including a pager receiver/transmitter and a pager modem for encoding said location information.

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The monitoring system of Claim 32, further comprising:

at least a portion of said plurality of targets being a plurality of transport vessels,
a wireless network system for communicating with said plurality of transport
vessels, and

5 said database being operable for storing vessel location information.

40. The monitoring system of Claim 32, further comprising:

a two-way pager operable for contacting one or more of said plurality of wireless
communication units through said pager network.

41. The monitoring system of Claim 32, further comprising:

a target interface for each of said plurality of wireless communication units for
communicating electrical signals to said wireless communication unit related to said
target.

42. The monitoring system of Claim 41, further comprising:

a microcontroller for operating said wireless communication unit.

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The monitoring system of Claim 41, further comprising:

20 said plurality of client computers are each operable for communicating with said
computer network server relating to said electrical signals for said one or more of said
plurality of targets with which said client is associated.

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~~44.~~ The monitoring system of Claim ~~43~~, further comprising:

at least a portion of said plurality of targets are vehicles,

each vehicle having an electrical system connected to said target interface,

said plurality of client computers being operable for sending an electrical signal to

5 said electrical system of said vehicle through said target interface for said one or more of
said plurality of targets with which said client is associated.

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~~45.~~ The monitoring system of Claim 43, further comprising:

at least a portion of said plurality of targets are vehicles,

10 each vehicle having an electrical system connected to said target interface,

said plurality of client computers being operable for detecting an electrical signal

from said vehicle through said target interface, said wireless network system, and said

computer network server in accordance with a description for each said target interface

stored within said database.

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46. A monitoring device for monitoring a target, comprising:
a microcontroller programmable in a low level language closely related to an
architecture of said microcontroller;
a target interface between said monitoring device and said target for
5 communicating one or more electrical target signals relating to said target;
a memory controllable by said microcontroller for storing data;
a global positioning sensor for producing target location information; and
said microcontroller, said memory, said global positioning sensor, and said target
interface being affixed to said target.

10 47. The monitoring device of Claim 46, wherein:
said microcontroller is programmable for storing a plurality of records in said
memory relating to said target location information.

15 48. The monitoring device of Claim 47, further comprising:
a computer for receiving said plurality of records and producing a map showing a
path of movement of said target with respect to a time period.

20 49. The monitoring device of Claim 48, further comprising:
said computer being operable for comparing said path of movement of said target
with a second path of movement for a second target.

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a pager modem, said microcontroller being programmable to operate said pager

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